

ARTICLE OF READY-TO-ASSEMBLE FURNITURE

BACKGROUND OF THE INVENTION

1. Field of the Invention.

[0001] The present invention relates generally to custom ordered furniture and the construction and packaging of such furniture for shipment and storage. More particularly, the invention relates to fully upholstered, ready-to-assemble furniture which may be custom ordered by a consumer, packaged by the seller for shipment to the consumer by a parcel delivery service, and then assembled by the consumer from the packaged components.

2. Description of the Related Art.

[0002] Ready-to-assemble furniture is furniture which is packaged for shipment and storage in disassembled form, with assembly to be done by the consumer or end user. Examples of existing ready-to-assemble non-upholstered furniture include bookcases, television stands, and simple chairs and benches. Mass merchandized, ready-to-assemble furniture is expected to be rather less expensive to the consumer than comparable pre-assembled furniture or to have distinctive functional features generally not available with its pre-assembled counterpart.

[0003] The genre of ready-to-assemble furniture packaged for mass merchandizing sale and home delivery has generally been limited to pieces of furniture which are utilitarian or hard-surfaced. Additionally, when a piece of furniture includes a long dimension, such as the side walls of a tall entertainment center or the front and rear walls of a sofa, it is limited in a shipping capacity by the long straight boards involved in its construction, such that the article of furniture cannot be shipped by a parcel delivery service without incurring additional and expensive charges. For instance, United Parcel Service, Inc. (UPS) presently has shipping limits that, when exceeded, subject the retailer or consumer to additional charges for "particularized delivery." Specifically, for less expensive non-particularized delivery, packages should only weigh up to 150 pounds, should only be up to 130 inches in length and girth combined, and should only be up to 108 inches in length. Also, packages cannot have any side over 60 inches in length without incurring additional charges. Oversize packages containing furniture with a long dimension (over 108 inches in length or part of a length and

girth combination of over 130 inches in length) require special pricing and dimensional weight calculations.

[0004] The special pricing not only adds cost to the furniture, but it also delays shipping times and forces the consumer to wait longer for delivery of the furniture. As such, prior ready-to-assemble furniture does not satisfy the need for fully upholstered or other types of ready-to-assemble furniture having a long dimension which may be custom ordered by the consumer and delivered to the household of the consumer by a parcel delivery service using non-particularized delivery.

[0005] What is needed is ready-to-assemble furniture of high quality and stable construction which may be packaged in a compact, easily storable and transportable manner, for easy shipment via existing, non-particularized home delivery channels.

SUMMARY OF THE INVENTION

[0006] The present invention provides fully upholstered, ready-to-assemble furniture which may be custom ordered by a purchaser, shipped directly to the home of the purchaser by a parcel delivery service, and then easily and quickly assembled by the purchaser. The ready-to-assemble article of furniture includes a frame having a composite frame member with a long dimension which is formed by a plurality of planar frame members assembled in an end-to-end and overlapping manner. The plurality of planar frame members are interconnected by interlocking protrusions and cutout portions, as well as by threaded fasteners received in push-in connector elements which are held in recesses within the frame members. The interlocking and threaded fastener connections allow a plurality of smaller frame members to form the composite frame member of the furniture frame, wherein the frame has the torsional and longitudinal stability of known furniture frames which include long, single boards. In particular, the interlocking and overlapping structure of the present furniture frame advantageously provides longitudinal and torsional stability to an article of furniture having a long dimension such as an entertainment center or sofa.

[0007] The plurality of planar frame members are of a suitable size so they may be packaged for non-particularized parcel delivery service. Non-particularized delivery reduces the cost of shipping the furniture and decreases the amount of time the consumer must wait for delivery. Further, the compact packaging gives consumers the option of taking the furniture home from a retail location at the time of sale in their own vehicles, rather than requiring them to wait for particularized delivery by the retailer or another carrier.

[0008] Conventional pre-assembled upholstered furniture can be generally classified as having high quality and high cost, or low quality and low cost. The present invention provides ready-to-assemble upholstered furniture of high quality and low cost. In addition, the above advantages enable the novel approach to the sale of fully upholstered furniture involving the custom ordering of furniture by a consumer over an Internet website for quick home, non-particularized, delivery by a parcel delivery service, such as, e.g., UPS.

[0009] In one embodiment, an article of furniture is provided, including a frame having a plurality of planar frame members connected to one another, the frame having at least one composite frame member, the composite frame member including at least two frame members coupled to one another in an end-to-end manner.

[0010] In another embodiment, an article of furniture is provided including a frame having a plurality of planar frame members connected to one another, the frame including a front wall and a rear wall, at least one of the front wall and the rear wall having a composite frame member, the composite frame member including at least three of the frame members coupled to one another in an end-to-end manner.

[0011] In a further embodiment, an article of seating furniture is provided including a frame having a composite frame member, the frame including a seat portion, a backrest portion, a front wall, and a rear wall, at least one of the front wall and the rear wall having a composite frame member, the composite frame member including a plurality of separate planar frame members coupled to one another in an end-to-end manner.

[0012] A still further embodiment provides a method of assembling an article of furniture which includes a composite frame member having a long dimension, including the steps of providing a disassembled frame having a plurality of planar frame members, and coupling at least two of the frame members to one another in an end-to-end manner, with the frame members extending along the long dimension of the composite frame member.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The above-mentioned and other features and advantages of this invention, and the manner of attaining them, will become more apparent and the invention itself will be better understood by reference to the following description of an embodiment of the invention taken in conjunction with the accompanying drawings, wherein:

[0014] Fig. 1 is a perspective view of an assembled exemplary article of furniture according to the present invention, shown as a sofa;

[0015] Fig. 2 is a front perspective view of the assembled frame of the sofa of Fig. 1;

[0016] Fig. 3 is a rear perspective view of the assembled frame of the sofa of Fig. 1;

[0017] Fig. 4 is an exploded partial perspective view of a portion of the frame of Fig. 3, showing the attachment of individual planar frame members according to the initial assembly steps;

[0018] Fig. 5 is a perspective view of a portion of the frame of Fig. 4, showing the interlocking and threaded fastener connections of the individual planar frame members;

[0019] Fig. 6 is an exploded partial perspective view of a portion of the frame of Fig. 4, showing the attachment of individual planar frame members according to the assembly steps;

[0020] Fig. 7 is an exploded partial perspective view of a portion of the frame of Fig. 3, showing the attachment of an additional planar frame member according to further assembly steps;

[0021] Fig. 8 is a perspective view of a portion of the frame of Fig. 7, showing the overlapping portions and the additional planar frame member;

[0022] Fig. 9 is an exploded partial perspective view of a portion of the frame of Fig. 2, showing the attachment of individual planar frame members according to additional assembly steps;

[0023] Fig. 10 is a perspective view of a portion of the frame of Fig. 9, showing the interlocking connections of the individual planar frame members;

[0024] Fig. 11 is an exploded partial perspective view of the frame of Fig. 2, showing the attachment of individual planar frame members according to further assembly steps;

[0025] Fig. 12 is a perspective view of a portion of the frame of Fig. 11, showing the interlocking and threaded fastener connections of individual planar frame members;

[0026] Fig. 13 is an exploded partial perspective view of a portion of the frame of Fig. 2, showing the attachment of an additional planar frame member according to additional assembly steps; and

[0027] Fig. 14 is an exploded partial perspective view of a portion of the frame of Fig. 2, showing the attachment of individual planar side members.

[0028] Corresponding reference characters indicate corresponding parts throughout the several views. The exemplification set out herein illustrates one preferred embodiment of the

invention, in one form, and such exemplification is not to be construed as limiting the scope of the invention in any manner.

DETAILED DESCRIPTION

[0029] Referring now to the drawings and in particular Fig. 1, article of furniture 20 is shown as a sofa. Except as described below, article of furniture 20 includes many features similar to the article of furniture described in U.S. Patent Number 6,568,058, entitled FULLY UPHOLSTERED, READY-TO-ASSEMBLE ARTICLE OF FURNITURE, assigned to the assignee of the present invention, the disclosure of which is expressly incorporated herein by reference. Article of furniture 20 includes front wall 22, rear wall 28 (Figs. 2 and 3), and side walls 24 and 26. Article of furniture 20 further includes back cushions 30a and 30b, seat cushions 32a and 32b, arm cushions 36a and 36b, and optionally, pillows 34a and 34b. Each of back cushions 30a and 30b, seat cushions 32a and 32b, arm cushions 36a and 36b, and pillows 34a and 34b include an upholstery cover enclosing a foam pad or a pillow. Although shown as a sofa in Fig. 1, the present invention may encompass other articles of furniture including, i.e., an entertainment center, a bookcase, or a computer workstation and desk, for example.

[0030] Frame 21 of article of furniture 20 is shown in Figs. 2 and 3. Cutout numbers 38 are provided in each frame member of frame 21 for assistance in the assembly process, and are unrelated to the reference numerals used in the present description herein. Advantageously, this numbering of frame members eases assembly of frame 21 by allowing the individual frame members to be identified and referred to in a set of printed assembly instructions, for example. Front wall 22 of article of furniture 20 includes end frame members 46 and 48, covering frame member 44, and central frame member 45 (Fig. 3) disposed behind covering frame member 44, the interconnection and structure of which will be described further below with reference to Figs. 9-13. Frame 21, as shown in Fig. 2, further includes back rest portions 40a, 40b and 40c providing a backrest for a user as well as a back support for back cushions 30a and 30b, and seat portions 42a, 42b and 42c providing a seating surface and a seat support for seat cushions 32a and 32b. Seat portions 42a, 42b and 42c also provide storage compartments within frame 21. Frame 21, as shown in Fig. 3, further includes frame members 132a, 132b and 132c added to increase the stability and strength of article of furniture 20. Furthermore, side walls 24 and 26 provide an armrest for a user and also support arm cushions 36a and 36b. Frame 21 further includes rear wall 28, shown in Fig. 4, which will be further described below with reference to Figs. 4-8.

[0031] The structure and construction of rear wall 28 will be described with reference to Figs. 4-8. Perpendicular members 50a and 50b, shown in Fig. 4, are connected to central frame member 52 using a plurality of interlocking connections and threaded fasteners. Central frame member 52 includes recesses or slots 64a, 64b and 64c on its first end portion 96, and recesses or slots 66a, 66b and 66c on its opposite end portion 98. Central frame member 52 further includes fastener holes 59a operable to receive threaded fasteners 58. Perpendicular member 50a includes protrusions 70a, 70b and 70c, and perpendicular member 50b includes protrusions 74a, 74b and 74c. Recesses 64a, 64b and 64c of central frame member 52 engage with protrusions 70a, 70b and 70c, respectively, of perpendicular member 50a to provide an interlocking connection therebetween. Protrusions 70a and 70c each extend beyond the planar surface of central frame member 52, while protrusion 70b is flush with the surface of central frame member 52. Protrusion 70b includes a recess adapted to receive push-in connector element 70d including connector fastener hole 59b, as shown in Fig. 6. As described in detail in the above-incorporated U.S. Patent No. 6,568,058, push-in connector element 70d may be formed of any suitable plastic and receives threaded fastener 58 in connector fastener hole 59b. Push-in connector element 70d provides a secure connection between perpendicular member 50a and end frame member 56 when threaded fastener 58 is inserted through hole 59a in end frame member 56 and tapped into hole 59b of connector element 70d. Protrusions 74a, 74b and 74c of perpendicular member 50b engage with recesses 66a, 66b and 66c, respectively, of central frame member 52. Protrusions 74a and 74c extend beyond the planar surface of central frame member 52, while protrusion 74b includes push-in connector element 74d having connector fastener hole 59b and is flush with the surface of central frame member 52.

[0032] Referring to Figs. 4-5, end frame member 54 of rear wall 28 includes recesses 60a and 60b in engagement with protrusions 74a and 74c, respectively, of perpendicular member 50b, and includes fastener holes 59a. When connected, protrusions 74a and 74c are flush with the surface of end frame member 54. End frame member 54 is secured further to perpendicular member 50b via threaded fastener 58 inserted through fastener hole 59a of end frame member 54 and threaded into connector fastener hole 59b of push-in connector element 74d, as shown in Fig. 5. End frame member 56 includes recesses or slots 62a and 62b, as well as fastener holes 59a. Recesses 62a and 62b engage with protrusions 70a and 70c, respectively, of perpendicular member 50a to form an interlocking connection therewith, as shown in Fig. 4. End frame member 56 is further secured to perpendicular member 50a via

threaded fastener 58 threaded through one fastener hole 59a in end frame member 56 and connector fastener hole 59b of push-in connector element 70d.

[0033] End frame member 54 includes end portion 94 overlapping end portion 98 of central frame member 52 and end frame member 56 includes end portion 92 overlapping end portion 96 of central frame member 52, as shown in Fig. 4. The interlocking and overlapping connections formed by end frame members 54 and 56 with central frame member 52 provide longitudinal and torsional stability to frame 21 when fully assembled, which is equivalent to the longitudinal and torsional stability provided by a single long board in a known article of furniture.

[0034] Rear wall 28 is completed with the addition of covering frame member 57, as shown in Fig. 7. Covering frame member 57 includes fastener holes 59a. Covering frame member 57 is secured to central frame member 52 via threaded fasteners 58 and end portions 97 and 95 of covering frame member 57 form an interlocking fit with end portions 92 and 94 of end frame members 56 and 54, respectively, whereby covering frame member 57 is flush with end frame members 56 and 54, as shown in Fig. 8.

[0035] Referring now to Fig. 9 and describing front wall 22, central frame member 45 includes slots or recesses 102a and 102b in end portions 120 and 122 thereof. Perpendicular member 50a includes protrusions 104a, 104b and 104c, as shown in Figs. 9 and 10. Protrusion 104b of perpendicular member 50a includes push-in connector element 104d having connector fastener hole 59b. Protrusions 104a, 104b and 104c engage with slot 102a of central frame member 45, shown in Fig. 10. Perpendicular member 50b includes protrusions 106a, 106b and 106c. Protrusion 106b includes push-in connector element 106d having connector fastener hole 59b. Protrusions 106a, 106b and 106c of perpendicular member 50b engage with slot 102b of central frame member 45, shown in Fig. 10. Protrusions 104a, 104c, and 106a, 106c of perpendicular members 50a and 50b, respectively, extend beyond the planar surface of central frame member 45, while protrusions 104b and 106b of perpendicular members 50a and 50b, respectively, are flush with the surface of central frame member 45, as best shown in Fig. 10.

[0036] End frame members 46 and 48 are shown in Figs. 11 and 12. End frame member 46 includes slots or recesses 112a-112d, fastener holes 59a, and end portion 124, shown in Fig. 11. Protrusions 104a and 104c of perpendicular member 50a engage with slots or recesses 112a and 112b, respectively, of end frame member 46, thereby providing an interlocking

connection. End frame member 46 is further secured to perpendicular member 50a via threaded fastener 58 received in connector fastener hole 59b of push-in connector element 104d, shown in Fig. 12. Perpendicular member 50c includes protrusions 110a, 110b and 110c. Protrusion 110b includes push-in connector element 110d having connector fastener hole 59b. Protrusions 110a and 110c engage with slots 112c and 112d, respectively, of end frame member 46. End frame member 46 is secured via the interlocking connections of protrusions 110a and 110c with slots or recesses 112c and 112d, as well as threaded fastener 58 received in connector fastener hole 59b of push-in connector element 110d.

[0037] Referring further to Fig. 11, end frame member 48 includes slots or recesses 114a-114d, fastener holes 59a, and end portion 126. Protrusions 106a and 106c of perpendicular member 50b engage with slots or recesses 114a and 114b, respectively, of end frame member 48. End frame member 48 is further secured to perpendicular member 50b via threaded fastener 58 received in connector fastener hole 59b of push-in connector element 106d, shown in Fig. 12. Perpendicular member 50d includes protrusions 108a, 108b and 108c. Protrusion 108b includes push-in connector element 108d having connector fastener hole 59b. Protrusions 108a and 108c engage with slots 114c and 114d, respectively, of end frame member 48. End frame member 48 is further secured to perpendicular member 50d via threaded fastener 58 received in connector fastener hole 59b of push-in connector element 108d, shown in Fig. 11. The interlocking and overlapping connections formed by end frame members 48 and 46 with central frame member 45 provide longitudinal and torsional stability to frame 21 of article of furniture 20 when fully assembled, which is equivalent to the longitudinal and torsional stability provided by a single long board in a known article of furniture.

[0038] Fig. 13 shows the addition of covering frame member 44 to front wall 22, wherein threaded fasteners 58 are used to secure covering frame member 44 to central frame member 45. End portions 121 and 123 of covering frame member 44 form an interlocking fit with end portions 124 and 126 of end frame members 46 and 48, respectively. Covering frame member 44 is flush with end frame members 46 and 48, thereby providing a uniform surface for covering by upholstery covers (Fig. 1).

[0039] As shown in Fig. 14, frame members 130a, 130b and 130c provide support for seat portions 42a, 42b and 42c (Figs. 2 and 3). Furthermore, side wall 24 is secured to end frame members 48 and 54 via threaded fasteners 58 received within push-in connector elements 48a and 48b, and 54a and 54b (Fig. 3) and side wall 26 is secured to end frame members 46 and

56 via threaded fasteners 58 received within push-in connector elements 46a and 46b, and 56a and 56b (Fig. 3). Push-in connector elements 46a and 46b, 48a and 48b, 56a and 56b, and 54a and 54b, each include connector fastener holes 59b. Side walls 24 and 26 provide support for arm cushions 36b and 36a, respectively.

[0040] Each of the above-described planar frame members are of a suitable size so they may be packaged for non-particularized parcel delivery service as discussed above. The ease of transportation of the shipping packages by merchants or carriers advantageously reduces shipping costs and/or labor. Further, the smaller frame members advantageously allow for compact packaging and gives consumers the option of either receiving home delivery of the furniture by a parcel delivery service, or to easily take the furniture home from a retail location at the time of sale in their own vehicles, rather than requiring them to wait for particularized delivery by the retailer or another carrier.

[0041] The number, size and shape of frame members discussed above will vary depending on the article of furniture to be produced. The frame members may be formed of any suitable supporting material, such as pre-finished plywood, oriented strandboard ("OSB"), medium density fiberboard ("MDF"), laminated veneer lumber ("LVL"), solid wood boards, laminated particle board, pre-formed plastic or metal pieces, other varieties of fiber board or strand board, or structural cardboard of honeycombed paperboard. Furthermore, fasteners may not be required for securing the frame members. For example, the interconnection of the frame assembly may instead consist solely of interlocking frame members, or adhesives may be used to join the frame members. The frame members may be prefinished or may consist of unfinished pieces that the consumers may stain and varnish or paint to suit their individual tastes.

[0042] The construction and size of the various components of the present invention advantageously provide to consumers ready-to-assemble upholstered furniture of high quality and low cost.

[0043] The final steps of construction for article of furniture 20 of Fig. 1 are described in detail in the above-incorporated U.S. Patent Number 6,568,058. Fabric upholstery covers are draped over frame 21 and secured thereto via hook-and-loop fasteners. Fabric covers are also designed to fit over foam padding elements or pillows made for the various cushions of article of furniture 20. For example, back cushions 30a and 30b are constructed using a fabric cover fitted over a pillow. In contrast, for example, arm cushions 36a and 36b are

constructed using a fabric cover fitted over a foam pad. The cushions are then placed on upholstered frame 21 in an arrangement, for example, as shown in Figure 1.

[0044] While this invention has been described as having a preferred design, the present invention can be further modified within the spirit and scope of this disclosure. This application is therefore intended to cover any variations, uses, or adaptations of the invention using its general principles. Further, this application is intended to cover such departures from the present disclosure as come within known or customary practice in the art to which this invention pertains and which fall within the limits of the appended claims.